Practice: plant transport

Student activity • observation and reasoning

YEAR 10 / LESSON 48 / BIOLOGY + SCIENCE (DOUBLE AWARD)

The question

Can you apply transport ideas to unfamiliar situations?

Use the supplied examples, record your reasoning and correct it using evidence.

Equipment

- Student booklet, paper models, pencil and ruler

Paper, modelling and written reasoning only. No chemicals or biological samples are handled.

Course coverage: Shared transport and tropisms; Biology-only calculation marked.

Plan, model or apparatus sketch

Draw and label the apparatus or biological model; identify one limitation.

Method and reasoning

Read the whole sequence before starting

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1. Answer independently and explain each choice.

2. Explain water and sucrose supply to a growing fruit using the correct tissues.

3. Explain how a cotyledon can supply a growing seedling.

4. Explain shoot bending under unilateral light.

5. Biology extension: calculate uptake volume for an internal capillary radius of 0.5 mm and displacement of 8 mm in 120 s.

6. Check answers, correct errors and distinguish numerical results from evidence for a mechanism.

Cleanup

- Return models and keep the corrected work.

Record your evidence

Blank spaces are for your own work

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Reference and task data

Original practice, not an examination-board paper. Potometer values are hypothetical calculation inputs only. Use $\pi r^2 d$ for volume and divide by elapsed time for rate.

Example / trial	Observation / evidence	Explanation / limit
Evidence / comparison		
Explanation		
Limit / correction		

Show your calculations, labelled model or correction here.

Explain and evaluate

Use evidence and show calculation steps where relevant

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1. Which tissue supplies fruit with sucrose?

2. Which supplies water?

3. Can a cotyledon be a source?

4. Explain shoot bending towards light.

5. Biology: find uptake volume.

6. Biology: find rate and one limitation.